



SEQUENCE LISTING

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DOUCET, CHARLOTTE J.

<120> CARROT ANTIFREEZE POLYPEPTIDES

<130> F7371(C)

<140> 09/308,140
<141> 1999-12-30

<150> PCT/EP97/06181
<151> 1997-11-06

<150> EP 96308362.1
<151> 1996-11-19

<160> 12

<170> PatentIn Ver. 2.1

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<212> PRT
<213> Daucus carota

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1 5

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Met	Asn	Ile	Glu	Ser	Ser	Phe	Cys	Pro	Ile	Leu	Cys	Ile	Cys	Met	Ile	
1			5			10			15							
ttc	ctc	tgc	ctt	cca	aac	ctc	tct	gca	tca	caa	aga	tgc	aac	aac	aac	96
Phe	Leu	Cys	Leu	Pro	Asn	Leu	Ser	Ala	Ser	Gln	Arg	Cys	Asn	Asn	Asn	
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gac	aag	caa	gct	tta	ctc	caa	atc	aaa	aca	gcc	ttg	aaa	aac	ccc	acc	144
Asp	Lys	Gln	Ala	Leu	Leu	Gln	Ile	Lys	Thr	Ala	Leu	Lys	Asn	Pro	Thr	
35			40			45										
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Ile	Thr	Asp	Ser	Trp	Val	Ser	Asp	Asp	Asp	Cys	Cys	Gly	Trp	Asp	Leu	
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gtc gaa tgt gac gaa acc agc aac cgc ata att tcc ctc ata att caa	240
Val Glu Cys Asp Glu Thr Ser Asn Arg Ile Ile Ser Leu Ile Ile Gln	
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Asp Asp Glu Ala Leu Thr Gly Gln Ile Pro Pro Gln Val Gly Asp Leu	
85 90 95	
cca tac ctc caa gcc tta tgg ttc cgt aaa ctc ccc aat ctt ttc gga	336
Pro Tyr Leu Gln Ala Leu Trp Phe Arg Lys Leu Pro Asn Leu Phe Gly	
100 105 110	
aaa atc cca gaa gaa att tct gca ctc aaa gac cta aaa tcc ctc aga	384
Lys Ile Pro Glu Glu Ile Ser Ala Leu Lys Asp Leu Lys Ser Leu Arg	
115 120 125	
ctc agc tcg acc agt ctc agt ggc cct gtc cct tta ttc ttc cct cag	432
Leu Ser Ser Thr Ser Leu Ser Gly Pro Val Pro Leu Phe Phe Pro Gln	
130 135 140	
ctt acg aaa cta act tgt tta gac tta tcg ttt aac aaa ctt ttg ggt	480
Leu Thr Lys Leu Thr Cys Leu Asp Leu Ser Phe Asn Lys Leu Leu Gly	
145 150 155 160	
gta atc cct cct cag ctt tcc act ctt ccg aac ctt aaa gcc ctg cac	528
Val Ile Pro Pro Gln Leu Ser Thr Leu Pro Asn Leu Lys Ala Leu His	
165 170 175	
tta gaa cgt aac gaa ctc acc ggt gaa atc ccc gat atc ttt ggg aat	576
Leu Glu Arg Asn Glu Leu Thr Gly Glu Ile Pro Asp Ile Phe Gly Asn	
180 185 190	
ttt gct gga tcc ccg gac ata tat ctt tcg cat aac cag ctc acc ggg	624
Phe Ala Gly Ser Pro Asp Ile Tyr Leu Ser His Asn Gln Leu Thr Gly	
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Phe Val Pro Lys Thr Phe Ala Arg Ala Asp Pro Ile Arg Leu Asp Phe	
210 215 220	
tca ggg aac aga cta gaa ggt gat att tca ttc ttg ttt ggg cct aaa	720
Ser Gly Asn Arg Leu Glu Gly Asp Ile Ser Phe Leu Phe Gly Pro Lys	
225 230 235 240	
aaa cgc ttg gaa atg cta gat ttt tca gga aac gtg ctt agt ttc aat	768
Lys Arg Leu Glu Met Leu Asp Phe Ser Gly Asn Val Leu Ser Phe Asn	
245 250 255	
ttc tcc agg gtg cag gag ttt cca ccc tct ttg aca tac tta gac ttg	816
Phe Ser Arg Val Gln Glu Phe Pro Pro Ser Leu Thr Tyr Leu Asp Leu	
260 265 270	
aac cat aac cag atc agc gga agt ctg tcg agt gaa ttg gct aaa ttg	864
Asn His Asn Gln Ile Ser Gly Ser Leu Ser Ser Glu Leu Ala Lys Leu	
275 280 285	

gac ctg cag aca ttt aac gtc agt gat aat aat ctc tgc ggc aag att 912
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 290 295 300

cca aca ggg gga aac ctc cag aga ttc gac cgt acg gcc tat ctc cac 960
 Pro Thr Gly Gly Asn Leu Gln Arg Phe Asp Arg Thr Ala Tyr Leu His
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<213> Daucus carota

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Asp Lys Gln Ala Leu Leu Gln Ile Lys Thr Ala Leu Lys Asn Pro Thr
 35 40 45

Ile Thr Asp Ser Trp Val Ser Asp Asp Asp Cys Cys Gly Trp Asp Leu
 50 55 60

Val Glu Cys Asp Glu Thr Ser Asn Arg Ile Ile Ser Leu Ile Ile Gln
 65 70 75 80

Asp Asp Glu Ala | Leu Thr Gly Gln Ile Pro Pro Gln | Val Gly Asp Leu
 85 90 95

Pro Tyr Leu Gln Ala Leu Trp Phe Arg Lys Leu Pro Asn Leu Phe Gly
 100 105 110

Lys Ile Pro Glu Glu Ile Ser Ala Leu Lys Asp Leu Lys Ser Leu Arg
 115 120 125

Leu Ser Ser Thr Ser Leu Ser Gly Pro Val Pro Leu Phe Phe Pro Gln
 130 135 140

Leu Thr Lys Leu Thr Cys Leu Asp Leu Ser Phe Asn Lys Leu Leu Gly
 145 150 155 160

Val Ile Pro Pro Gln Leu Ser Thr Leu Pro Asn Leu Lys Ala Leu His
 165 170 175

Leu Glu Arg Asn Glu Leu Thr Gly Glu Ile Pro Asp Ile Phe Gly Asn
 180 185 190

Phe Ala Gly Ser Pro Asp Ile Tyr Leu Ser His Asn Gln Leu Thr Gly
 195 200 205

Phe Val Pro Lys Thr Phe Ala Arg Ala Asp Pro Ile Arg Leu Asp Phe
 210 215 220
 Ser Gly Asn Arg Leu Glu Gly Asp Ile Ser Phe Leu Phe Gly Pro Lys
 225 230 235 240
 Lys Arg Leu Glu Met Leu Asp Phe Ser Gly Asn Val Leu Ser Phe Asn
 245 250 255
 Phe Ser Arg Val Gln Glu Phe Pro Pro Ser Leu Thr Tyr Leu Asp Leu
 260 265 270
 Asn His Asn Gln Ile Ser Gly Ser Leu Ser Ser Glu Leu Ala Lys Leu
 275 280 285
 Asp Leu Gln Thr Phe Asn Val Ser Asp Asn Asn Leu Cys Gly Lys Ile
 290 295 300
 Pro Thr Gly Gly Asn Leu Gln Arg Phe Asp Arg Thr Ala Tyr Leu His
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 325 330

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 Gly Pro Val Pro Leu Phe Phe Pro
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<210> 9
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23

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32

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 gac tta tcg ttt aac aaa ctt ttg ggt gta atc cct cct cag ctt tcc 96
 Asp Leu Ser Phe Asn Lys Leu Leu Gly Val Ile Pro Pro Gln Leu Ser
 20 25 30
 act ctt ccg aac ctt aaa gcc ctg cac tta gaa cgt aac gaa ctc acc 144
 Thr Leu Pro Asn Leu Lys Ala Leu His Leu Glu Arg Asn Glu Leu Thr
 35 40 45
 ggt gaa atc ccc gat atc ttt ggg aat ttt gct gga tcc ccg gac ata 192
 Gly Glu Ile Pro Asp Ile Phe Gly Asn Phe Ala Gly Ser Pro Asp Ile
 50 55 60
 tat ctt tcg cat aac cag ctc acc ggg ttt gtt ccc aaa act ttt gct 240
 Tyr Leu Ser His Asn Gln Leu Thr Gly Phe Val Pro Lys Thr Phe Ala
 65 70 75 80
 aga gca gat cca att agg ctc gac ttc tca ggg aac aga cta gaa ggt 288
 Arg Ala Asp Pro Ile Arg Leu Asp Phe Ser Gly Asn Arg Leu Glu Gly
 85 90 95
 gat att tca ttc ttg ttt ggg cct aaa aaa cgc ttg gaa atg cta gat 336
 Asp Ile Ser Phe Leu Phe Gly Pro Lys Lys Arg Leu Glu Met Leu Asp
 100 105 110
 ttt tca gga aac gtg ctt agt ttc aat ttc tcc agg gtg cag gag ttt 384
 Phe Ser Gly Asn Val Leu Ser Phe Asn Phe Ser Arg Val Gln Glu Phe
 115 120 125
 cca ccc tct ttg aca tac tta gac ttg aac cat aac cag atc agc gga 432
 Pro Pro Ser Leu Thr Tyr Leu Asp Leu Asn His Asn Gln Ile Ser Gly
 130 135 140
 agt ctg tcg agt gaa ttg gct aaa ttg gac ctg cag aca ttt aac gtc 480
 Ser Leu Ser Ser Glu Leu Ala Lys Leu Asp Leu Gln Thr Phe Asn Val
 145 150 155 160
 agt gat aat aat ctc tgc ggc aag att cca aca ggg gga aac ctc cag 528
 Ser Asp Asn Asn Leu Cys Gly Lys Ile Pro Thr Gly Gly Asn Leu Gln
 165 170 175
 aga ttc gac cgt acg gcc tat ctc cac aac agt tgc ttg tgt ggt gct 576
 Arg Phe Asp Arg Thr Ala Tyr Leu His Asn Ser Cys Leu Cys Gly Ala
 180 185 190

cca ttg cca gaa tgc tagttacat gcaaaatgtg ccttaagggtt atctttgtaa 631
 Pro Leu Pro Glu Cys
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tgagatatat tatgcagctc aaggcagagc aataagtttt cctaatttgt tatagtaaga 691
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 20 25 30

Thr Leu Pro Asn Leu Lys Ala Leu His Leu Glu Arg Asn Glu Leu Thr
 35 40 45

Gly Glu Ile Pro Asp Ile Phe Gly Asn Phe Ala Gly Ser Pro Asp Ile
 50 55 60

Tyr Leu Ser His Asn Gln Leu Thr Gly Phe Val Pro Lys Thr Phe Ala
 65 70 75 80

Arg Ala Asp Pro Ile Arg Leu Asp Phe Ser Gly Asn Arg Leu Glu Gly
 85 90 95

Asp Ile Ser Phe Leu Phe Gly Pro Lys Lys Arg Leu Glu Met Leu Asp
 100 105 110

Phe Ser Gly Asn Val Leu Ser Phe Asn Phe Ser Arg Val Gln Glu Phe
 115 120 125

Pro Pro Ser Leu Thr Tyr Leu Asp Leu Asn His Asn Gln Ile Ser Gly
 130 135 140

Ser Leu Ser Ser Glu Leu Ala Lys Leu Asp Leu Gln Thr Phe Asn Val
 145 150 155 160

Ser Asp Asn Asn Leu Cys Gly Lys Ile Pro Thr Gly Gly Asn Leu Gln
 165 170 175

Arg Phe Asp Arg Thr Ala Tyr Leu His Asn Ser Cys Leu Cys Gly Ala
 180 185 190

Pro Leu Pro Glu Cys
 195